

The invention also includes lithography photomask blanks and preforms for producing lithography photomask. The method of making a lithography photomask blank includes providing a soot deposition surface, producing SiO₂ soot particles and projecting the SiO₂ soot particles toward the soot deposition surface. The method includes successively depositing layers of the SiO₂ soot particle on the deposition surface to form a coherent SiO₂ porous glass preform body comprised of successive layers of the SiO₂ soot particles and dehydrating the coherent SiO₂ glass preform body to remove OH from the preform body. The SiO₂ is exposed to and reacted with a fluorine containing compound and consolidated into a nonporous silicon oxyfluoride glass body with parallel layers of striae. The method further includes forming the consolidated silicon oxyfluoride glass body into a photomask blank having a planar surface with the orientation of the striae layer parallel to the photomask blank planar surface.